



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

AW

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/737,606	12/14/2000	Pierre Leroux		8081

7590 11/28/2003

Corporate Patent Counsel  
Philips Electronics North America Corporation  
580 White Plains Road  
Tarrytown, NY 10591

EXAMINER

MAGEE, THOMAS J

ART UNIT PAPER NUMBER

2811

DATE MAILED: 11/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Applicati n No.

09/737,606

Applicant(s)

LEROUX, PIERRE

Examin r

Thomas J. Magee

Art Unit

2811

AW

-- Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 15 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Reopening of Prosecution***

1. In view of the APPEAL BRIEF filed on August 15, 2003, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

- (1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,
- (2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

### ***Claim Rejections – 35 U.S.C. 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Art Unit: 2811

3. Claims 1 – 3, 6, and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Zhou (US 6,172,409 B1).

4. Regarding Claims 1 and 2, Zhou discloses (Col. 6, lines 48 – 67; Col. 7, lines 4 – 13) a set of alignment structures, located within scribe lines (Figure 4) at the sides of rectangular die, consisting of a series of marks (12a – 12 d) (See Figure 1), each of which may include up to four discrete marks or “targets” (Col.3, lines 11 –32) at the midpoint along a scribe line for receiving a four-sided stepper shot with the scribe line at the periphery and “marks” at opposing sides of the stepper shot, wherein targets are in mirror-image positions and equal in length.

5. Regarding Claim 3, Zhou discloses (Figure 1) that an alignment target is located at each corner of the stepper shot.

6. Regarding Claim 6, Zhou discloses (Col. 3, lines 47 – 52) (Figure 1) a second region containing a second set of alignment marks (14a – 14d) for receiving a second stepper shot having a scribe line along its perimeter, such that a segment of the scribe line of second stepper shot overlays a segment of the first stepper shot such that an alignment target of the second stepper shot overlays an alignment target of the first.

7. Regarding Claim 7, Zhou discloses (Col. 6, lines 57 – 61) that the alignment marks in sets have an alignment with respect to each other to include perpendicular, parallel or other combinations to include (Col. 3, lines 21 – 29) squares, rectangles, T-shape, or a cross shape.

***Claim Rejections – 35 U.S.C. 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhou, and further in view of Wolf et al. ("Silicon Processing for the VLSI Era: Vol. 1" Lattice Press, Sunset Beach, CA., (1986), p. 478) and Banks ("Introduction to Microengineering," Demon Co., England (1999), p.2).

10. Regarding Claims 4 and 5, Zhou does not disclose the formation of targets by either a positive or negative resist process. However, the formation of features on a material (such as chrome) by these procedures is notoriously well known in the art. Wolf et al. discloses (page 478, Figure 21) the formation of "clear-field" (positive) and "dark-field" (negative) patterns, corresponding to transparent or opaque fields (raised or depressed features). Banks discloses (page 2, 3<sup>rd</sup> through 5<sup>th</sup> paragraph) how a negative image (depression on mask) is transferred through the process to a target to produce a positive feature or a negative feature. Hence, it would have been obvious to one of ordinary skill in the art at the time of the invention to add Wolf et al. and Banks to Zhou to obtain a process for

Art Unit: 2811

producing alignment targets by a positive or negative photoresist step onto scribe lines of a wafer surface to form raised or depressed target features.

### ***Response to Arguments***

11. Applicant's arguments in relation to Claims 1, 2, and 6 have been carefully considered, but have been found to be unpersuasive. In response to applicant's arguments that Zhou does not disclose that the relative positions of an alignment "target" within a stepper shot, Examiner does not concur. Zhou discloses (Col. 3, lines 11 – 32) the presence of a first set of alignment "marks" consisting of up to four discrete "marks" (targets) for each indicated line, wherein the marks are used as a means for aligning a lithographic pattern (Col. 7, lines 31 – 32) and having an outer boundary (scribe line) (Col. 8, lines 1 – 2) used in aligning the pattern with a commercially available stepper. Further, the targets are arranged in mirror image pairs, as shown in Figure 1, whereby relative positions of stepper "shots" may be configured to overlap midpoints.

In regard to the contention by Applicant that Zhou discloses only a single alignment target, Examiner does not concur. As discussed above, and in the Office Action, the reference clearly reads on the limitations of the claimed invention and "multiple targets" are disclosed.

Art Unit: 2811

### **Conclusions**

12. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to **Thomas Magee**, whose telephone number is **(703) 305 5396**. The Examiner can normally be reached on Monday through Friday from 8:30AM to 5:00PM (EST). If attempts to reach the Examiner by telephone are unsuccessful, the examiner's supervisor, **Eddie Lee**, can be reached on **(703) 308-1690**. The fax number for the organization where this application or proceeding is assigned is **(703) 872-9306**.



**EDDIE LEE**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2800**

Thomas Magee  
November 23, 2003